

ABSTRACT OF THE DISCLOSURE

A new class of superconducting compositions, and methods for making and using them are described.

These compositions exhibit superconductivity at 5 temperatures in excess of 26°K. and are comprised of transition metal oxides having at least one additional element therein which may create a multi-valent state of the transition metal oxide. The 10 composition can be a ceramic-like material having a layer-like crystalline structure, where the structure is distorted having either an oxygen excess or deficiency. An example is RE-AE-TM-O, where RE is a rare earth or rare earth-like element, AE is an alkaline earth element, TM is a 15 transition metal element (such as Cu) and O is oxygen.